

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested

Claims 1-26 are presently active in this case. The present Amendment amends Claims 1-13 and adds new Claims 14-26.

In the outstanding Office Action, Claims 4-9 were rejected under 37 C.F.R. §1.75(c) as in improper form. Claims 1-3 and 10-13 were rejected under 35 U.S.C. §112, second paragraph, as indefinite. Claims 1 and 10 were rejected under 35 U.S.C. §103(a) as unpatentable over Rached et al. (U.S. Patent No. 6,671,313, herein “Rached”) in view of Cochran et al. (U.S. Patent No. 6,363,124, herein “Cochran”). However, Claims 2-3 and 12-13 are indicated as including allowable subject matter.

First, Applicants acknowledge with appreciation the indication of the allowable subject matter in Claims 2-3 and 12-13.

In response to the rejection of Claims 4-9 under 37 C.F.R. §1.75(c) as in improper form, the Claims 4-9 are amended to cancel the improper multiple-dependent claim language. Claim 4 now only depends upon Claim 3, Claim 5 now only depends upon Claim 1, and Claim 9 now only depends upon Claim 1.

In response to the rejection of Claims 1-3 and 10-13 under 35 U.S.C. §112, second paragraph, Claims 1-3 and 10-13 are amended to correct the noted informalities. Further, Claims 1-13 are amended to comply better with U.S. claim drafting practice. In view of amended Claims 1-13, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

To vary the scope of protection recited in the claims, new Claims 14-26 are added.

New Claims 14 and 22 recite features on the covariance matrix Γ from original Claim 3, and depend upon Claims 3 and 19, respectively. New Claims 15 and 23 recite features on the impulse response of the channel from original Claim 4, and depend now upon Claims 4 and 19, respectively. New Claims 16 and 25 recite features on the propagation delays from original Claim 8, and depend now upon Claims 8 and 21, respectively. New Claims 17 and 24 recite the same features as Claim 5, and dependent now upon Claims 8 and 19, respectively. New Claims 18 and 26 recite the same features of Claim 9, and dependent now upon Claim 4 and 24, respectively. New Claim 19 recites the same features of Claim 10 and additionally some features of Claim 11, but rewritten without the means-plus-function language. New Claims 20 and 21 recite features on the matrix of the noise from original Claim 11, and depend now upon Claims 10 and 19, respectively. New Claims 14-26 find non-limiting support in the disclosure as originally filed, for example in the original claims, and therefore they are not believed to raise a question of new matter.¹

In response to the rejection of Claims 1 and 10 under 35 U.S.C. §103(a), Applicants respectfully request reconsideration of this rejection and traverse the rejection.

Claim 1 now additionally recites features from original Claim 2 to recite “estimating a covariance matrix of a noise from an empirical covariance matrix of observations \hat{R}_x and a number of pilot chips of a learning sequence transmitted with the received signal,” and Claim 10 now additionally recites features from Claim 11 to recite “means estimating a matrix of the noise from an empirical covariance matrix of observations \hat{R}_x and from a number of pilot chips of a learning signal transmitted with the signal.”

¹ See MPEP 2163.06 stating that “information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter.”

Turning now to the applied references, neither the Rached nor the Cochran patent discloses a feature related to an estimation of a covariance matrix of a noise from an empirical covariance matrix of observations and a number of pilot chips of a learning sequence. Rached teaches that an estimate of the impulse response of the channel is established, and is weighted by the statistic of the channel by using the received signal.² However, Rached fails to teach estimating a matrix of the noise from a number of pilot chips of a learning signal transmitted with the signal. Weighting an estimate of an impulse response with a statistic of the channel, as taught by Rached, *is not* estimating a matrix of the noise from a number of pilot chips of a learning signal.

Furthermore, Applicants respectfully submit that also the second reference Cochran does not teach the above-noted feature recited in Claims 1 and 10, namely an estimation of a covariance matrix of a noise from an empirical covariance matrix of observations and a number of pilot chips of a learning sequence. Cochran teaches that an adaptive equalizer 54 is used that better equalizes the received signal and better compensates for the effects of additive noise.³ An adaptive equalizer used for better equalizing the received signal on the effects of additive noise, as taught by Cochran, *is not* estimating a matrix of the noise from a number of pilot chips of a learning signal.

Therefore, the prior art fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1 and 10 are believed to be patentably distinct over the prior art. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection based on the Rached and Cochran patents.⁴

² See Rached at column 3, lines 6-8.

³ See Cochran at column 7, lines 47-55.

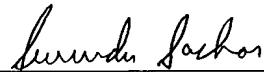
⁴ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-26 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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